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M E M O R A N D U M

TO: Susan Sylvester, Director, Operations and Hydrologic Data Management Department

FROM: SFWMD Staff Environmental Advisory Team

DATE: March 16, 2010

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

Discharge from Lake Kissimmee averaged 3214 cubic per second (cfs) at S65 over the week. Lake Okeechobee stage is 14.04 feet NGVD, which is 0.49 feet higher than a week ago, 0.57 feet higher than a month ago, 1.62 feet higher than it was a year ago, and 0.83 feet higher than the simulated average using the current regulation schedule. Average salinity levels in the Saint Lucie estuary are good for the oyster, *Crassostrea virginica,* location in the estuary and time of year. In the Caloosahatchee Estuary, average surface salinity is good. Since the 30-day average salinity at the Ft. Myers station is 8.6 practical salinity units, conditions are good in the upper estuary. Conditions in the lower estuary are good. WCA's recession rates were generally poor or fair because of the weekend's rainfall. Much of the region was experiencing very good recession rates last week for the wading birds. Greater Everglades water depths (see Depth differences map) are a bit deeper than those a week ago. Salinity was generally stable in Florida Bay over the past week.

Weather Conditions and Forecast

Minor rains tomorrow and Thursday. Considerable energy will move through the peninsula tomorrow and Thursday as a well defined short wave trough over Texas ejects in pieces across the Gulf of Mexico. However, low level moisture, convergence, and instability will be lacking, so rainfall should be light. Drier air will then filter down the peninsula behind the exiting system on Thursday. Subsequent dry and pleasant conditions are expected late Thursday through Sunday afternoon. Next chance for significant rain appears with a cold front Sunday night or Monday. The next ten days precipitation outlook is near average with low confidence.

KISSIMMEE WATERSHED

Over the past week the Upper Kissimmee Basin received 4.2 inches of rainfall, and the Lower Basin 3.1 inches. Rainfall in the last 30 days totaled 5.2 inches in the Upper Basin (173% of normal) and 3.6 inches in the Lower Basin (139% of normal) (SFWMD Daily Rainfall Report 3/16/2010).

Upper Kissimmee Basin

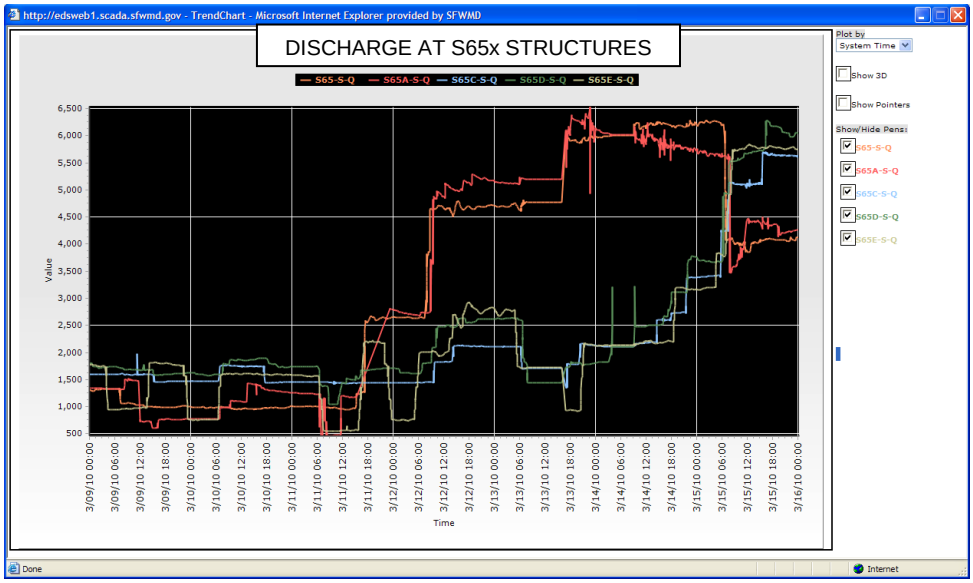
- Stages in the Kissimmee Chain of Lakes (KCOL) are within 0.5 feet of regulation schedule (USACE Kissimmee River Report 3/15/2010). **Lakes marked (C) or (SK) are currently being operated under temporary deviations; the departures shown are from the temporary schedules (SFWMD Operations Control Division)**.
- Heavy rainfall in the Upper Basin last week resulted in substantial stage reversals in lakes Tohopekaliga, East Tohopekaliga, Cypress, Hatchineha, and Kissimmee.
  - Lakes Hart and Mary Jane are less than 0.1 feet below the temporary deviation schedule (C).
  - Lakes Myrtle, Preston, and Joel are 0.5 feet above the temporary deviation schedule (C).
  - Lakes in the Alligator Chain are approximately 0.2 feet above the temporary deviation schedule (C).
  - Lake Gentry is 0.1 feet below regulation schedule.
  - East Lake Tohopekaliga is 0.4 feet above the temporary deviation schedule (SK).
  - Lake Tohopekaliga is 0.5 feet above the temporary deviation schedule (SK); discharge at S61 averaged 1605 cfs over the past week (891 cfs last week).
  - Lake Kissimmee is approximately 0.4 feet above the temporary deviation schedule (SK).
  - Discharge at S65 averaged 3214 cfs over the past week (1536 cfs last week). Discharge was almost 5,000 cfs on 3/10 and 6,000 cfs on 3/13 due to heavy rainfall.

DATE: 3/16/2010					
Water Body	**Structure**	**Deviation**	**Today's Regulation Stage (SFWMD Operations Control)**	**Today's stage (SFWMD Operations Control)**	**Departure**
Lakes Hart and Mary Jane	S62	C	60.46	60.44	**-0.02**
Lakes Myrtle, Preston, and Joel	S57	C	60.32	60.77	**0.45**
Alligator Chain of Lakes	S60	C	63.45	63.65	**0.20**
Lake Gentry	S63		61.47	61.35	**-0.12**
East Lake Toho	S59	SK	57.07	57.45	**0.38**
Lake Toho	S61	SK	54.15	54.62	**0.47**
Lakes Kissimmee, Cypress, and Hatchineha	S65	SK	51.04	51.39	**0.35**

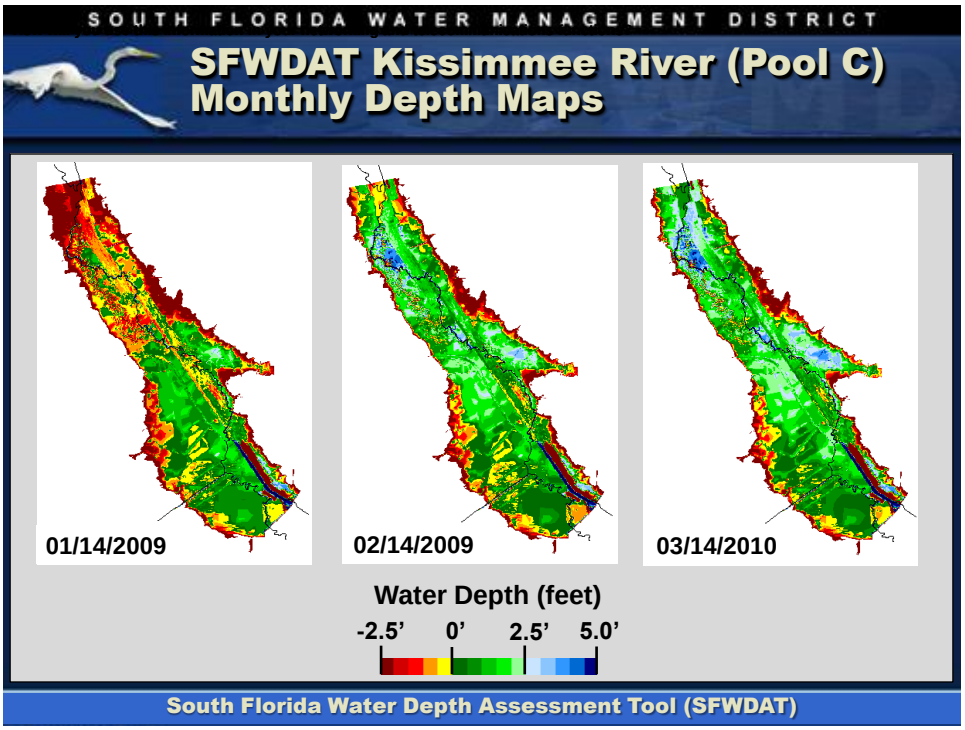
C = temporary deviation for construction
SK = temporary deviation for snail kite habitat

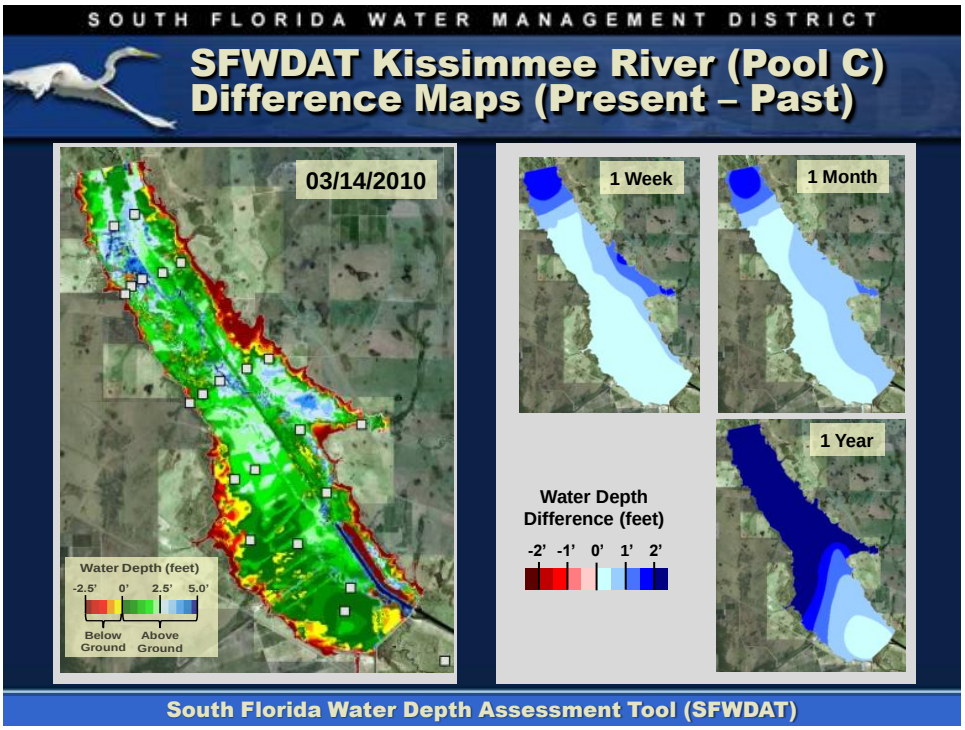
Lower Kissimmee Basin (discharges, stages, and dissolved oxygen concentrations are **weekly averages** from SFWMD **DualTrend).**

- Discharge at S65-A averaged 3471 cfs over the past week (1497 cfs last week).
- Discharge at S65-C averaged 2749 cfs over the past week (1938 cfs last week), with headwater stage averaging 34.4 feet (34.2 last week).
- Discharge at S65-D averaged 2555 cfs over the past week (2140 cfs last week).
- Discharge at S65-E to Lake Okeechobee averaged 2127 cfs over the past week (1810 cfs last week).



- Water depths have increased on the Kissimmee River floodplain, averaging 1.3 feet in the Phase I restoration area (SFWDAT 3/14/2010) (1.0 feet last week). SFWDAT depth and difference maps below.





- River channel dissolved oxygen (DO) concentrations in the Phase I area averaged 6.8 mg/L over the past week, well above the level of concern of ≤2.0 mg/L.

Water Management Recommendation:
No changes are being requested from Operations Control at this time.

LAKE OKEECHOBEE

According to the USACE web site, Lake Okeechobee stage is 14.04 feet NGVD for the period ending at midnight March 15, 2010; which is 0.49 feet higher than a week ago, 0.57 feet higher than a month ago, and 1.62 feet higher than a year ago. The current stage is 0.4 feet below the historical average for this date and 0.83 feet higher than the simulated average using the current regulation schedule (LORS2008). Total reported inflows are approximately 8288 cfs and include flows as listed in the following table:

Structure	**Flow cfs**
S65E	5448 (3214 weekly average)
S154	51
S84	162
S71	737
S72	130
S191	589
S129 pumps	56
S 131 pumps	44
S135 pumps	194
S2 pumps	401(now stopped)
S4 pumps	322 (now stopped)
Fish Eating Creek	154

According to Raindar 4.4 inches of rain fell directly over the lake this past week. Lake net outflows are negligible.

A wading bird foraging flight conducted this morning indicated an approximate 40% decline in wading bird utilization of the lake compared to the previous flight conducted in early March 2010. Activity continues to be focused in the south western marsh though in general, flocks were smaller and behavior indicated that the quality of the available feeding habitat had declined.

Water Management Recommendation

Lake stage has increased by nearly one half of a foot over the past 5 days which could have serious consequences for submerged and emergent vegetation and wading birds; particularly if this rapid rate of rise continues. It is probable that if lake stage can be stabilized or the rate of rise slowed substantially, submerged and emergent aquatic vegetation may avoid negative impacts in the short term. Improvement in wading bird habitat on the lake is dependent on the establishment of a regular sustained recession, probably best begun by the end of March to improve the chances of having sufficient time for the nesting cycle to complete before anticipated wet season increases in lake stage begin.

ESTUARIES

St. Lucie Estuary

Over the past week, flow averaged 21 cfs at S308 and 612 cfs at S-80. Provisional data indicate that discharge averaged 660 cfs at S-49 on C-24 and 397 cfs at S-97 on C-23. The current weekly average salinities (in bold) at the three monitoring sites in the St. Lucie Estuary are given below in practical salinity units (psu), along with the previous week's (in parenthesis).

	Weekly Average Salinity (psu)		
Sampling Site	**Surface**	**Bottom**	**Envelope**
HR1 (N Fork)	**12.1** (16.4)	**14.0** (18.5)	
US1 Bridge	**13.8** (19.5)	**14.2** (19.9)	8.0 – 25.0
A1A Bridge	**20.4** (27.3)	**22.2** (28.2)	20.0 – 31.0

Salinity decreased over the past week throughout the estuary. Significant rainfall, discharge, and runoff dropped the 30 day average salinity to 13 psu at Roosevelt Bridge, 14 psu at A1A Bridge, and 7 psu at HR1 within three days (see graphs). Weekly average salinity is within the preferred range at both the Roosevelt and A1A Bridges. Salinity conditions in the estuary are good considering the time of year, the location in the estuary, and salinity preference of the oyster, *Crassostrea virginica.*

Water Management Recommendation

Watershed runoff from the recent storm event has reduced the average daily salinity at the US1 Bridge below the preferred low salinity of 8 psu to about 6 psu. It is recommended that we allow the system to rebound into the favorable range and then determine the volume of water that could be released from the Lake to maintain the salinity above 8 psu. These releases are necessary to reduce the chances of larger harmful releases in the near future. The District will monitor the situation daily and share this information.

Caloosahatchee Estuary

During the past week, flow averaged 585 cfs at S-77, 1782 cfs at S-78, and 4000 cfs at S-79. The concentration of chlorides at the Olga Plant was 67 ppm. The current weekly average salinities (in bold) at the six monitoring sites in the Caloosahatchee Estuary are given below in practical salinity units (psu), along with the previous week's (in parenthesis).

Weekly Average Salinity (psu)		
Sampling Site	**Surface**	**Bottom**
S-79 (Franklin Locks)	**0.7** (0.9)	**0.7** (0.9)
BR31	**0.8** (1.3)	**0.9** (1.6)
Val I75	**1.1** (2.2)	**2.3** (3.2)

Ft. Myers Yacht Basin*	**5.2** (8.3)	**8.1** (9.7)
Marker 52	**5.6** (8.7)	**9.5** (10.9)
Cape Coral	**13.6** (16.5)	**15.5** (17.4)
Shell Point	**23.4** (26.6)	**24.0** (27.0)
Sanibel	**28.2** (30.0)	**29.4** (31.2)

*values are estimated using a regression relationship between salinity at Marker 52 and salinity at Ft. Myers.

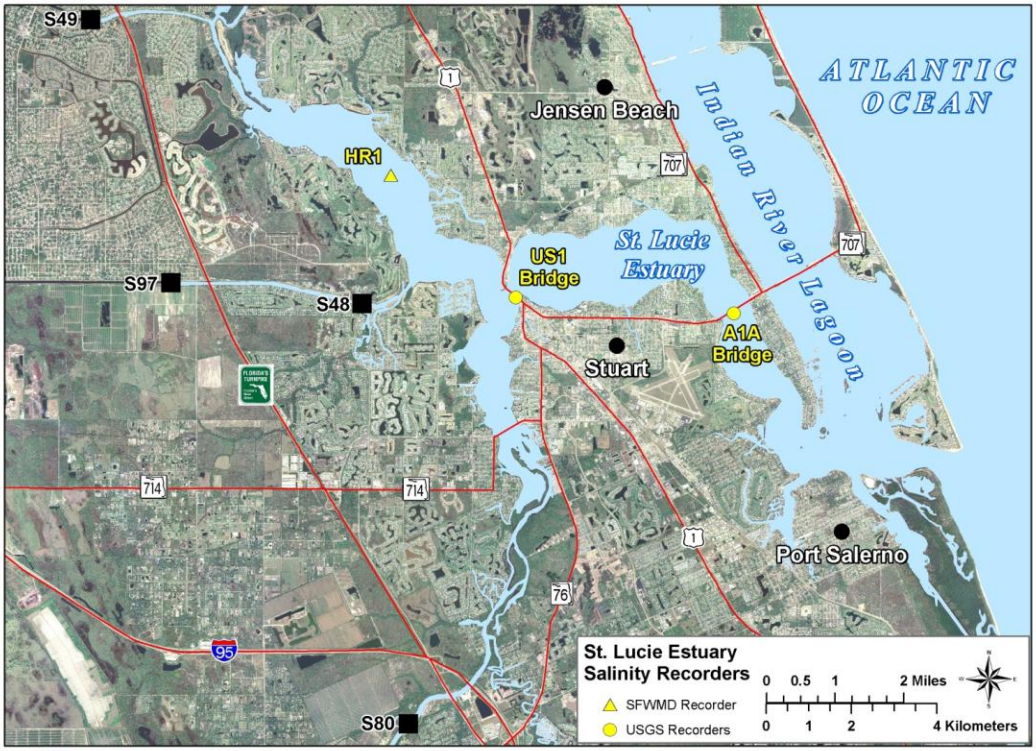
Average salinity decreased throughout the estuary over the past week. Significant rainfall, discharge, and runoff dropped salinity 1.1 psu at S79, 8.2 psu at Ft. Myers, and 13 psu at Shell Point within three days (see graph). Since the estimated 30-day average salinity at Ft. Myers is 8.6 psu conditions are good in the upper estuary. Salinities at the Cape Coral Bridge are within the preferred range for the oyster, *Crassostrea virginica.* Salinities at Shell Point and the Sanibel Causeway indicate that conditions are good for seagrass in the lower estuary and San Carlos Bay. Therefore, conditions in the lower estuary and San Carlos Bay are good.

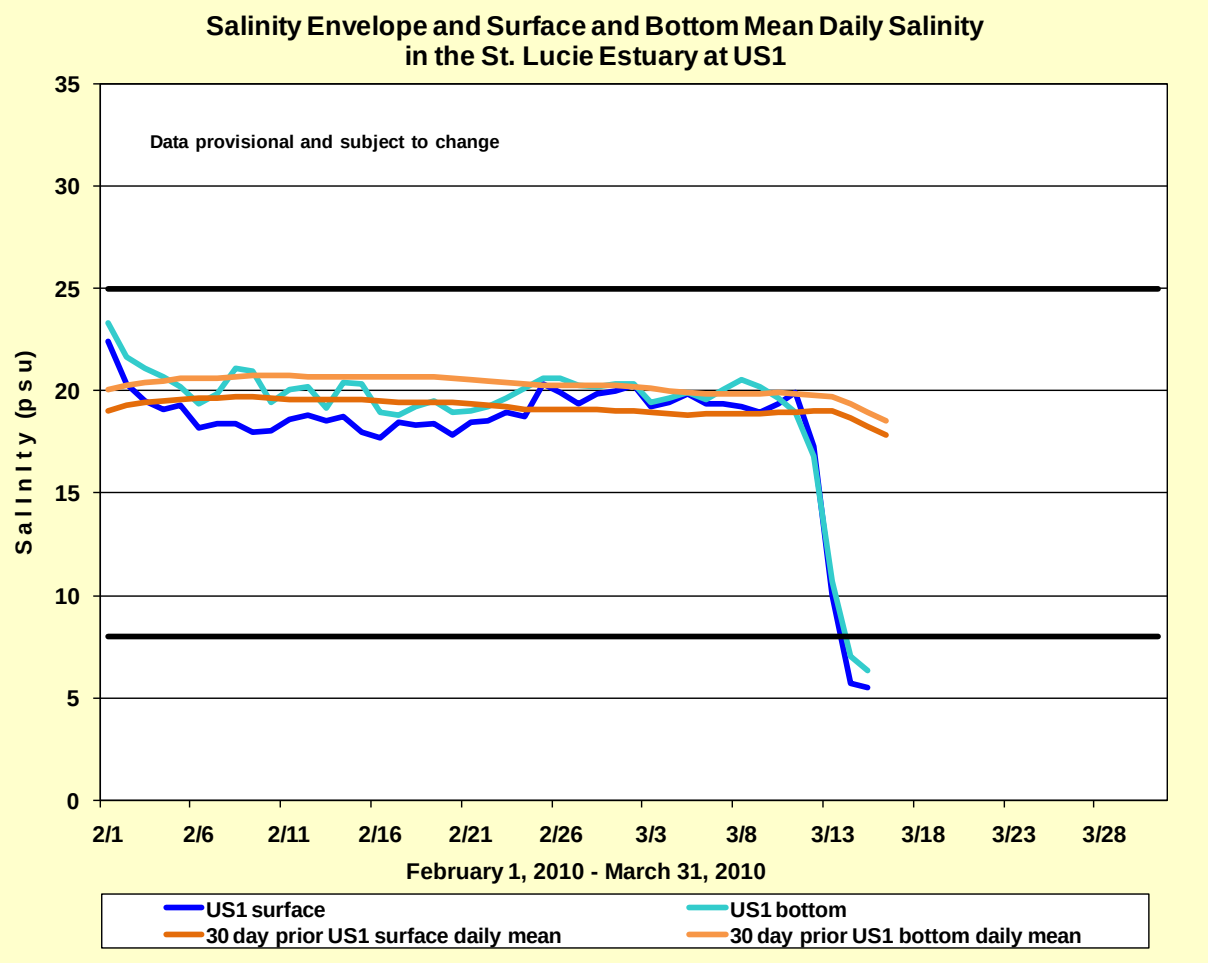
Monitoring data collected by the River, Estuary and Coastal Observing Network (RECON) of Sanibel-Captiva Conservation Foundation (SCCF) indicated that dissolved oxygen concentrations ranged between 6.5 and 8.8 mg/l at Shell Point and Ft. Myers. Chlorophyll *a* at Ft. Myers ranged between 1.9 and 12.7 ug/l. At Shell Point concentration generally ranged between 1.9 and 20 ug/l with a several spikes between 30 – 63 ug/l.

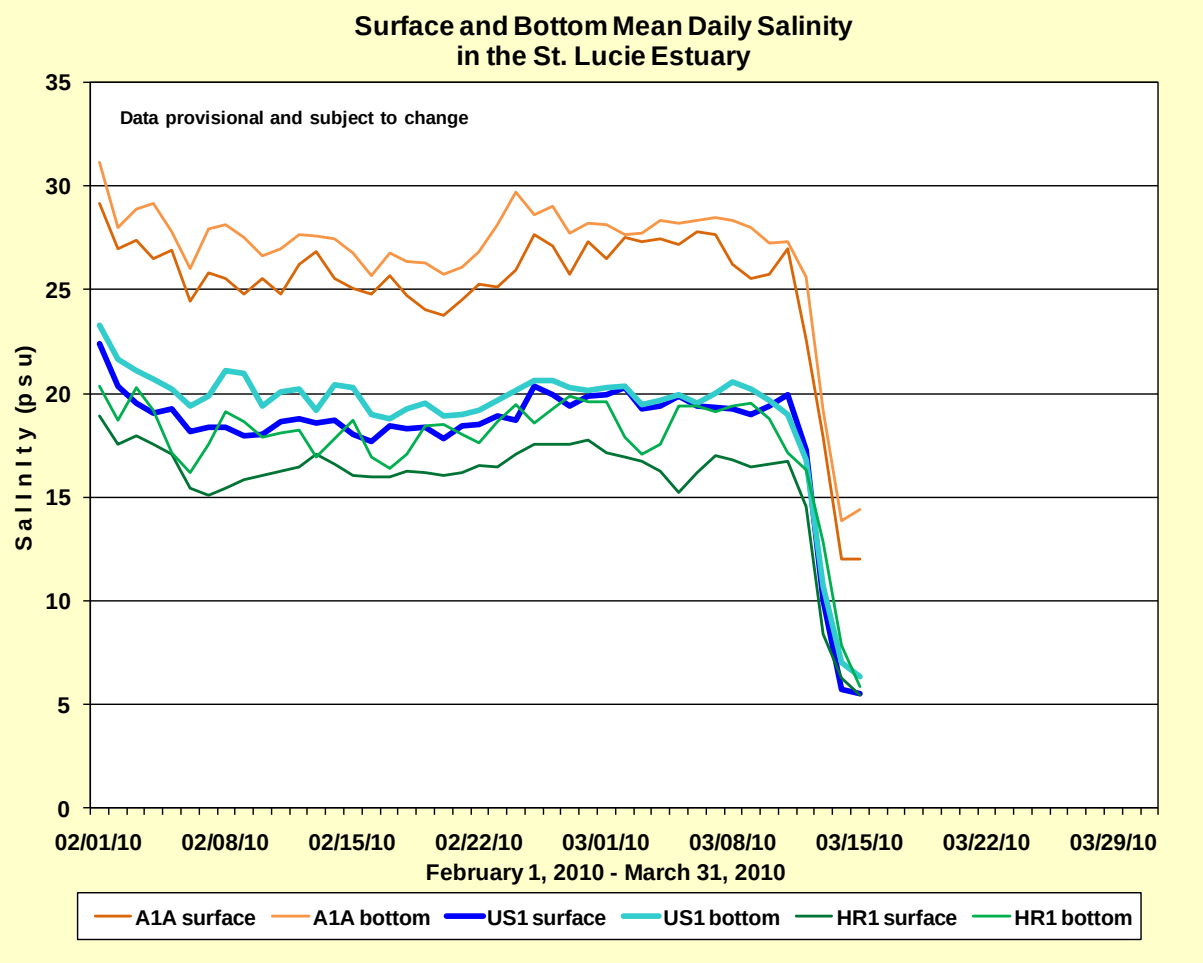
Fish and Wildlife Research Institute (FWRI) reports that *Karenia brevis*, the Florida red tide organism, was not detected in water samples collected this week alongshore between Pinellas and Monroe counties or offshore of northern Monroe County and the Florida Keys (Monroe County).

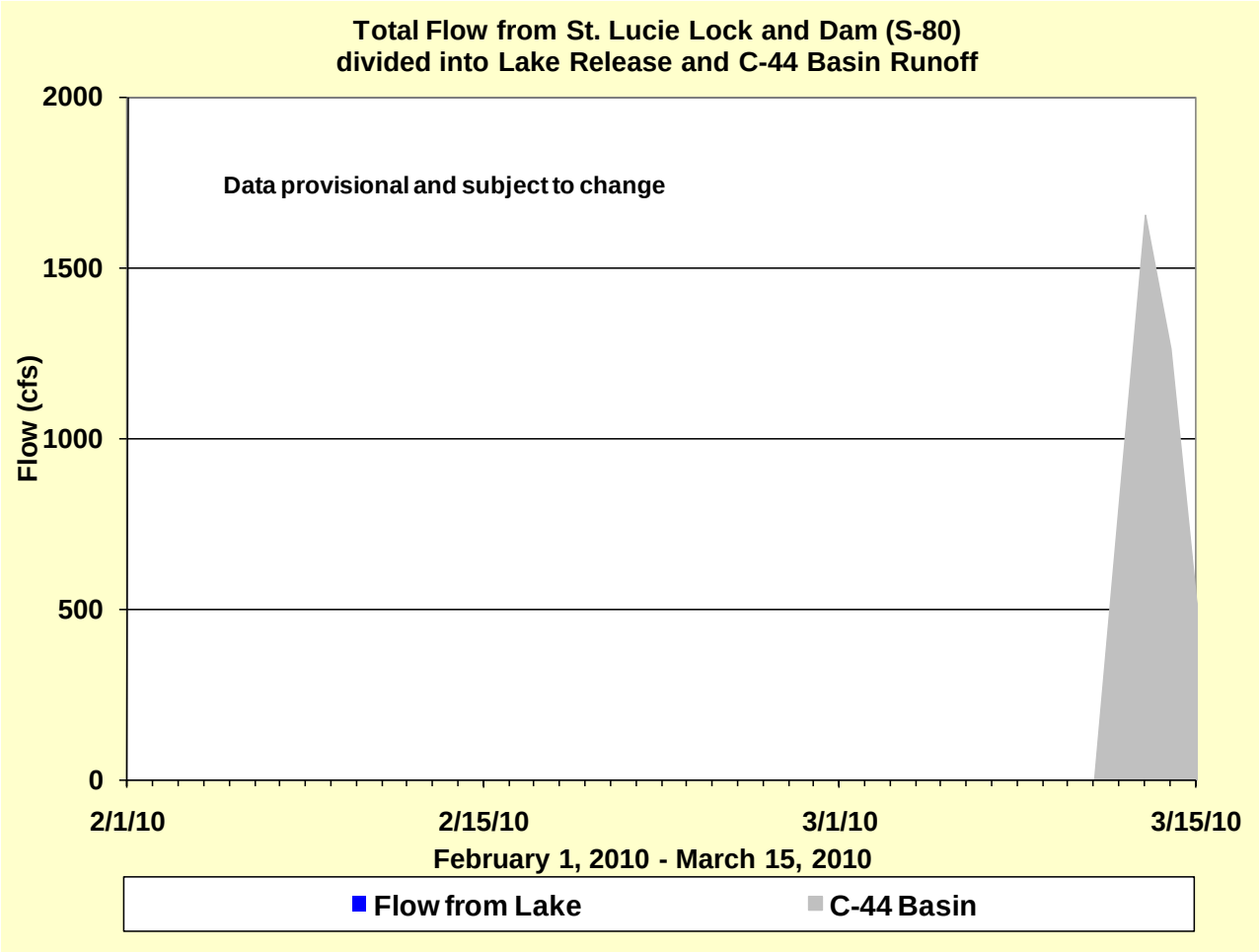
Water Management Recommendation

Runoff from the C-43 Basin has reduced salinities in the estuary low enough to stress oysters in the area between the Cape Coral Bridge and Shell Point. It is recommended that we allow the system to rebound from this a typical storm event and then determine what flows from the Lake can be implemented without damage to oysters and seagrasses in the area mentioned. The District will monitor the situation daily and share this information.

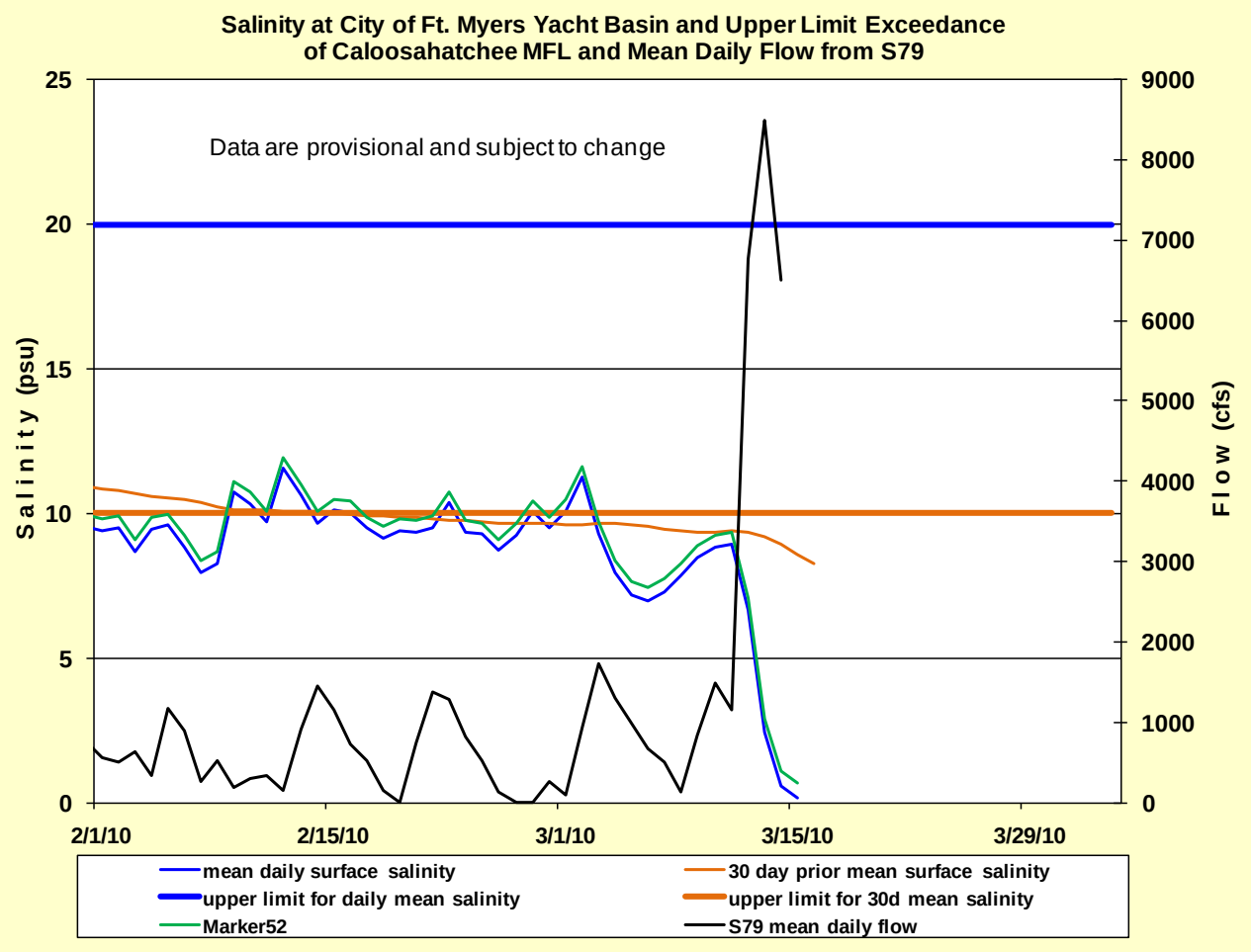

S49
S97
S48
S80
HR1
US1 Bridge
A1A Bridge
Jensen Beach
Stuart
Port Salerno
ATLANTIC OCEAN
Indian River Lagoon
St. Lucie Estuary
1
707
714
76
95
St. Lucie Estuary Salinity Recorders
SFWMD Recorder
USGS Recorders
0 0.5 1 2 Miles
0 1 2 4 Kilometers

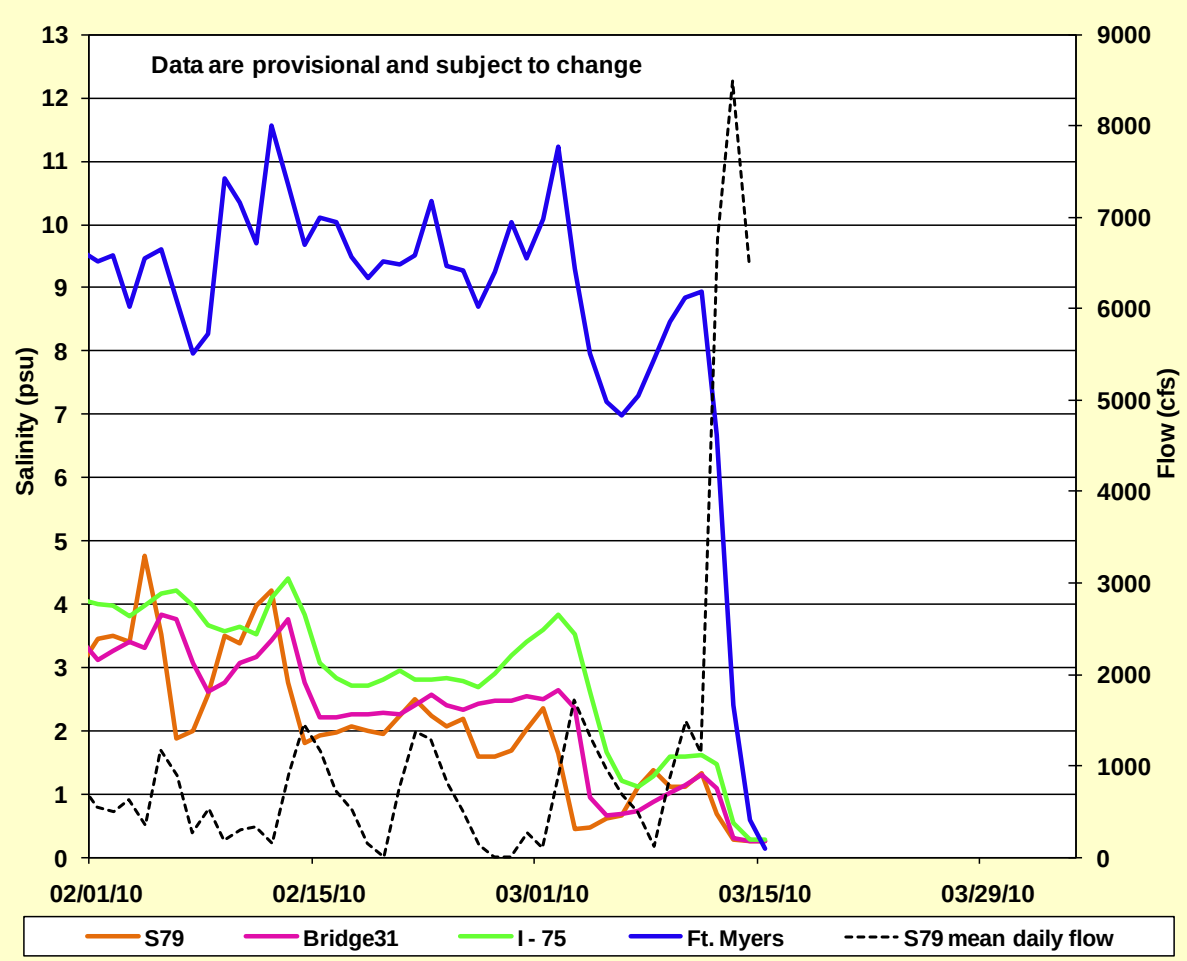

Salinity Envelope and Surface and Bottom Mean Daily Salinity
in the St. Lucie Estuary at US1
Data provisional and subject to change
Salinity (psu)
35
30
25
20
15
10
5
0
2/1
2/6
2/11
2/16
2/21
2/26
3/3
3/8
3/13
3/18
3/23
3/28
February 1, 2010 - March 31, 2010
US1 surface
US1 bottom
30 day prior US1 surface daily mean
30 day prior US1 bottom daily mean

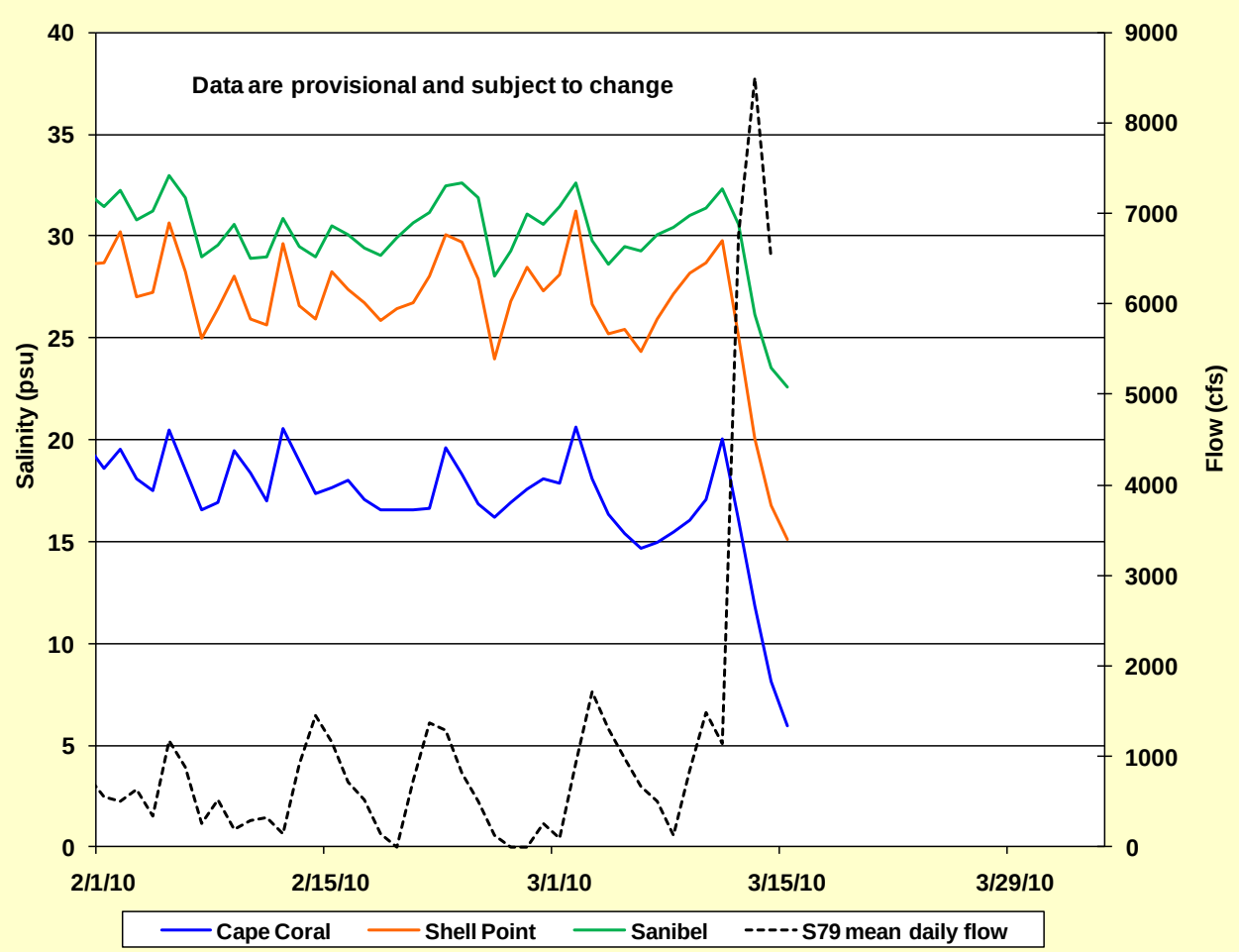

Surface and Bottom Mean Daily Salinity
in the St. Lucie Estuary
Data provisional and subject to change
Salinity (psu)
35
30
25
20
15
10
5
0
02/01/10
02/08/10
02/15/10
02/22/10
03/01/10
03/08/10
03/15/10
03/22/10
03/29/10
February 1, 2010 - March 31, 2010
A1A surface
A1A bottom
US1 surface
US1 bottom
HR1 surface
HR1 bottom

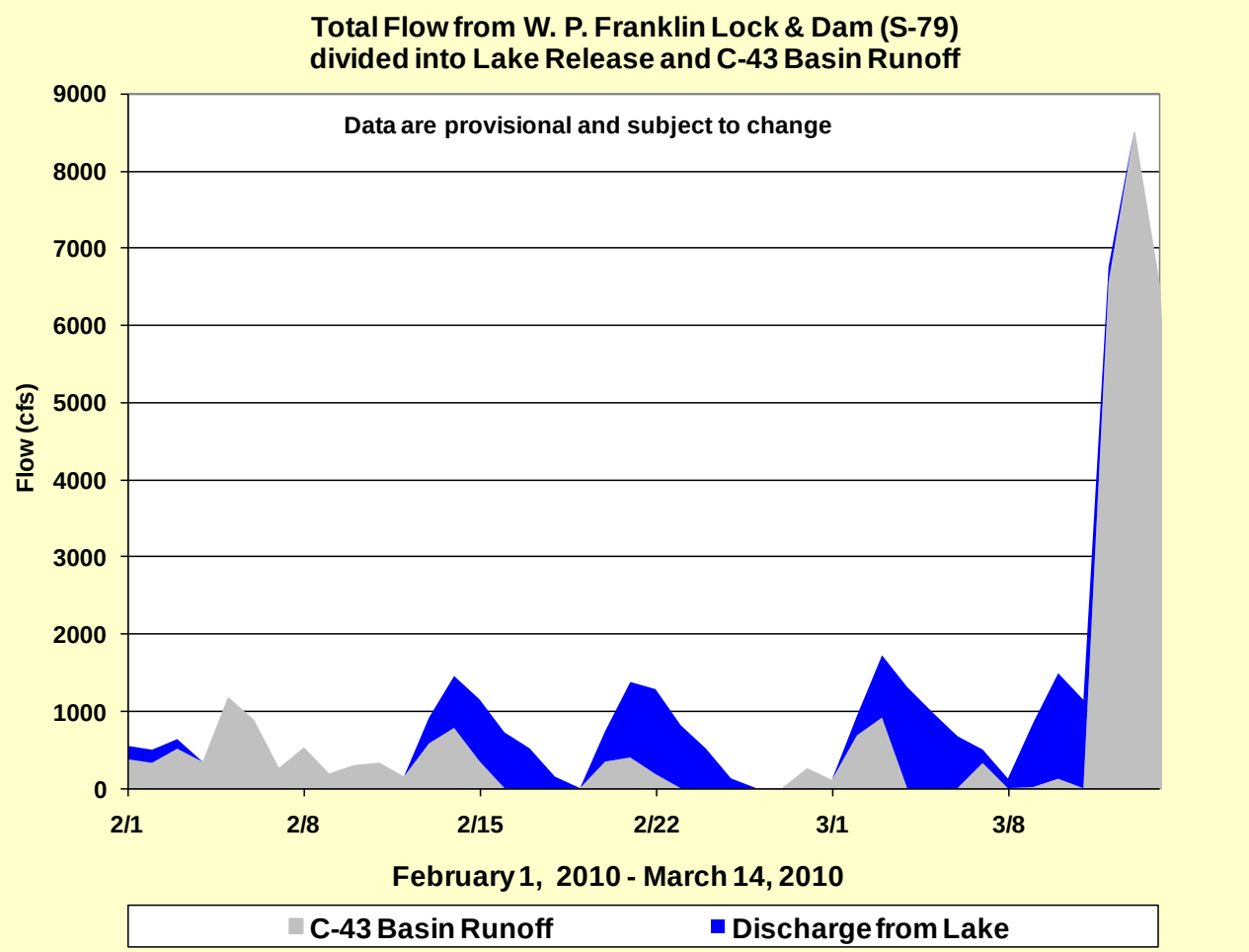

Total Flow from St. Lucie Lock and Dam (S-80)
divided into Lake Release and C-44 Basin Runoff
Data provisional and subject to change
Flow (cfs)
2000
1500
1000
500
0
2/1/10
2/15/10
3/1/10
3/15/10
February 1, 2010 - March 15, 2010
Flow from Lake
C-44 Basin


Charlotte Harbor
Pine Island Sound
San Carlos Bay
GULF OF MEXICO
Estero Bay
Caloosahatchee Estuary
LEE CO.
Ft. Myers
Marker52
Cape Coral
Shell Point
Sanibel
Vall75
BR31
S79
41
75
78
80
867
0 0.9 1.8 2.7 3.6 4.5 Miles
0 1 2 4 6 8 10 Kilometers
Caloosahatchee Estuary
Salinity Stations


Salinity at City of Ft. Myers Yacht Basin and Upper Limit Exceedance
of Caloosahatchee MFL and Mean Daily Flow from S79
Data are provisional and subject to change
Salinity (psu)
Flow (cfs)
25
20
15
10
5
0
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
2/1/10
2/15/10
3/1/10
3/15/10
3/29/10
mean daily surface salinity
30 day prior mean surface salinity
upper limit for daily mean salinity
upper limit for 30d mean salinity
Marker52
S79 mean daily flow


Data are provisional and subject to change
Salinity (psu)
Flow (cfs)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
02/01/10
02/15/10
03/01/10
03/15/10
03/29/10
S79
Bridge31
I - 75
Ft. Myers
S79 mean daily flow


Data are provisional and subject to change
Salinity (psu)
Flow (cfs)
40
35
30
25
20
15
10
5
0
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
2/1/10
2/15/10
3/1/10
3/15/10
3/29/10
Cape Coral
Shell Point
Sanibel
S79 mean daily flow



GREATER EVERGLADES

Water Conservation Areas (WCA):

Rainfall in the conservation areas and Everglades National Park (ENP) was high in the north and light in the south (see Raindar image and below), with a local high of 6.3 inches in WCA-1 (ARM Loxahatchee National Wildlife Refuge).

Rain:				
	WCA-1:	2.76 inches	WCA-3A:	1.59 inches
	WCA-2A:	2.01 inches	WCA-3B:	1.00 inches
	WCA-2B:	1.42 inches	ENP:	0.41 inches

Rainfall exceeded pan evaporation of 1.07 inches in the northern and central regions of the Greater Everglades. Rainfall produced a number of reversals in the conservation areas and the Park (see WCA Stages spreadsheet and below). Values of 0.15 and 0.39 were recorded in ARM Loxahatchee National Wildlife Refuge (WCA-1) and of 0.16

in northern WCA-3A. This week's recession rates were generally poor or fair because of the weekend's rainfall.

Stage Change:				
	WCA-1:	0.20 inches	WCA-3A:	0.03 inches
	WCA-2A:	0.08 inches	WCA-3B:	-0.01 inches
	WCA-2B:	0.00 inches	NESRS:	0.04 inches

The Greater Everglades (see Water Depths map) continue to show larger dry areas in the Park and in Big Cypress and as of Saturday show patterns similar to those a month ago. Greater Everglades water depths (see Depth differences map) are a bit deeper than those a week ago and a month ago in northern areas and shallower to the south, and are much deeper than a year ago, particularly in Big Cypress, ENP, and the northern conservation areas.

With the rainfall, marsh water stages rose sharply this week in the Refuge (WCA-1) and in the canals in WCA-2A (see Regulation schedules). Marsh stages in WCA-2A also rose this week. In WCA-3A, the marsh stage rose but continues to run parallel to regulation stages in Zone E1.

Depths considered good for wading bird feeding (green) remain in central WCA-2A, northern and western WCA-3A, and along and in Shark River Slough in ENP (see Birds-depths map). Much of the region was experiencing very good recession rates last week when the wading bird recession rates map was produced (see Birds-recession map below). Most of WCA-1, -3A, -3B, and the Park experienced optimal recession rates before the weekend rainfall.

Everglades National Park (ENP) and Florida Bay:

Despite the very heavy rain that fell across most of the District last week, only light rain fell across Everglades National Park (ENP) and Florida Bay. ENP stations measured 0.1 inch to 1.6 inches of rainfall and the basin-wide, spatially-averaged weekly RAINDAR total was 0.3 inches in each of the ENP and C-111 basins (see image below).

Stages generally declined across ENP wetland stations. Water level increased 0.6 inches in Shark River Slough but dropped -1.0 inches at the Taylor Slough Bridge. To the south, water levels dropped -1.3 inches and -0.6 inches in the ENP panhandle and in Craighead Basin, respectively.

Salinity was generally stable across Florida Bay. In the near shore eastern Bay, salinity was steady near 20 practical salinity units (psu) in Long Sound but was variable between the lower and middle 20s at the Little Madeira Bay platform. Further into the Bay in Duck Key Basin, salinity increased slightly from the middle to the middle-upper 20s. The 30 day moving average salinity at the Taylor River platform (used for tracking the Florida Bay Minimum Flows and Levels Rule) was unchanged at 0.9 psu, and the daily average salinity was similarly unchanged at 0.9 psu. In the north central Bay,

salinity increased from the lower teens to the middle 20s mid-week, where it became variable, until dropping back to the middle teens by week's end in McCormick Creek, and increased from the middle-lower teens to the middle-lower 20s in Terrapin Bay. At the central Bay platform in Whipray Basin, salinity was steady in the middle-lower 30s. To the west, in the upstream reaches of Shark River Slough, salinity increased slightly from 4.0 to 5.6 psu.

Birds and Wildlife

Wading Birds: The weekly Friday survey flight was cancelled because of poor flight conditions. Yesterday's District colony flight (details to follow) revealed very little nesting or foraging in the WCAs and northern ENP. Water levels appear to be too deep for foraging in most areas.

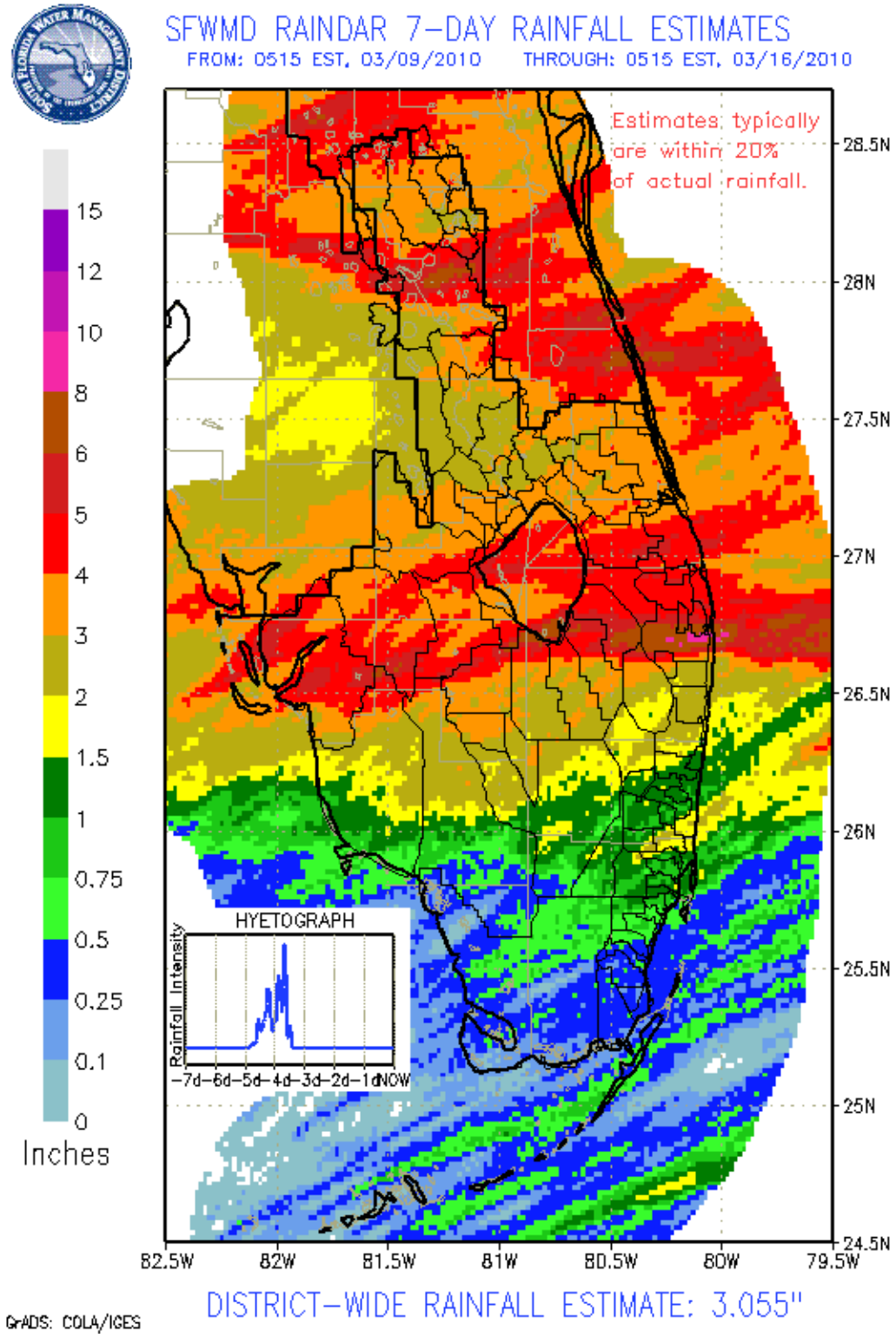
Snail Kites: Snail Kite researchers have confirmed that some nest abandonments have occurred in WCA-3A, and some nests are still active (numbers are not available). The researchers suggest that abandonment was likely a result of the cold weather reducing snail availability. Note that Kites can re-nest at this early stage of the breeding season if conditions are appropriate.

Water Management Recommendation

Water levels are too deep in WCAs 1 and 2, so an increase in recession rates would benefit foraging wading birds in one or both of these regions (optimum: 0.04 - 0.15 feet/week). Recession rates last week in WCA-3A were generally a little fast for snail kite nesting until the Friday rain event. To benefit the Kite, we recommend a recession rate of approx. 0.05 feet/week for the immediate future, although rates up to 0.1feet/week would be acceptable in the short term (next 7 days) if rain-related water releases are necessary. Any movement of water into ENP should not increase water levels at NP205.

Attachments

Raindar:



WCA Stages spreadsheet:

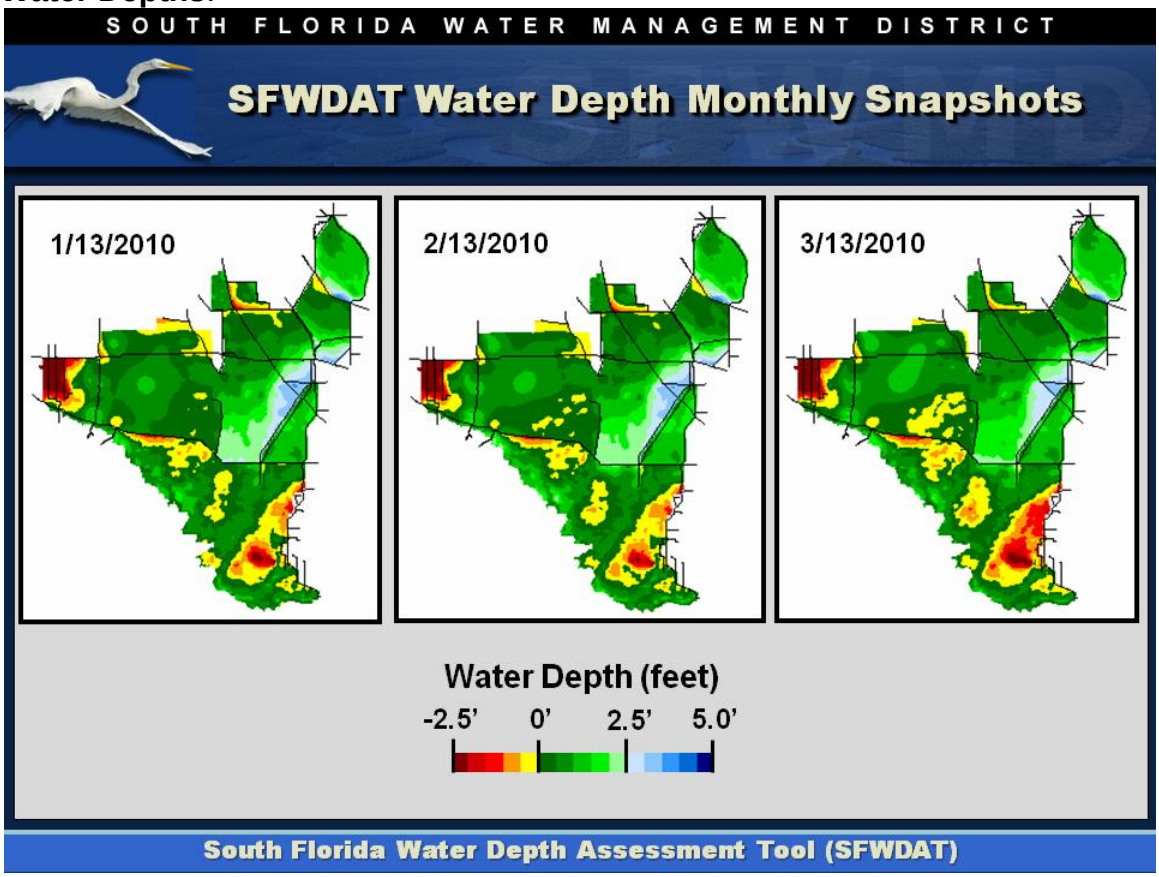
WCA and ENP Hydrology Data with Environmental Ratings

Area	Gage	Ground Elevation	Stage 12/22/09	Stage 12/29/09	Stage 1/5/10	Stage 1/12/10	Stage 1/19/10	Stage 1/26/10	Stage 2/2/10	Stage 2/9/10	Stage 2/16/10	Stage 2/23/10	Stage 3/2/10	**Stage 3/9/10**	**Stage 3/16/10**	**Stage Change**
WCA-1	1-7	15.4	16.72	16.66	16.62	16.57	16.61	16.58	16.57	16.55	16.57	16.52	16.59	**16.53**	**16.68**	**0.15**
	1-9	14.7	16.74	16.68	16.64	16.60	16.60	16.56	16.56	16.55	16.56	16.51	16.61	**16.53**	**16.60**	**0.07**
	1-8T		16.77	16.72	16.67	16.63	16.62	16.58	16.58	16.58	16.60	16.51	16.60	**16.47**	**16.86**	**0.39**
WCA-2A	2-17	11.1	12.48	12.25	12.01	11.88	11.82	11.75	11.71	11.67	11.65	11.60	11.74	**11.77**	**11.85**	**0.08**
WCA-2B	99	6.8	10.65	10.56	10.44	10.37	10.37	10.31	10.34	10.24	10.20	10.11	10.13	**10.05**	**10.06**	**0.01**
	EDEN-13	6.7	9.10	9.00	8.89	8.85	8.85	8.83	8.79	8.69	8.66	8.60	8.60	**8.52**	**8.52**	**0.00**
WCA-3A	62	10.1	10.88	10.82	10.79	10.75	10.75	10.75	10.80	10.78	10.77	10.79	10.85	**10.85**	**11.01**	**0.16**
	63	9.08	10.19	10.28	10.29	10.20	10.15	10.13	10.18	10.17	10.07	9.97	9.97	**9.91**	**9.96**	**0.05**
	64	8.49	10.26	10.24	10.23	10.22	10.30	10.26	10.25	10.23	10.15	10.09	10.05	**9.94**	**9.92**	**-0.02**
	65	7.3	9.91	9.88	9.88	9.91	9.92	9.87	9.90	9.85	9.77	9.67	9.65	**9.51**	**9.43**	**-0.08**
WCA-3B	76	6.32	7.64	7.59	7.56	7.56	7.62	7.57	7.78	7.71	7.66	7.60	7.61	**7.56**	**7.53**	**-0.03**
	71	6.52	7.95	7.90	7.88	7.89	7.90	7.90	7.91	7.94	7.91	7.88	7.89	**7.83**	**7.82**	**-0.01**
	SRS1	6.23	7.56	7.49	7.42	7.41	7.41	7.40	7.41	7.41	7.41	7.40	7.40	**7.36**	**7.37**	**0.01**
ENP	NESRS2	5.62	6.77	6.67	6.60	6.57	6.55	6.50	6.54	6.61	6.72	6.74	6.77	**6.74**	**6.78**	**0.04**

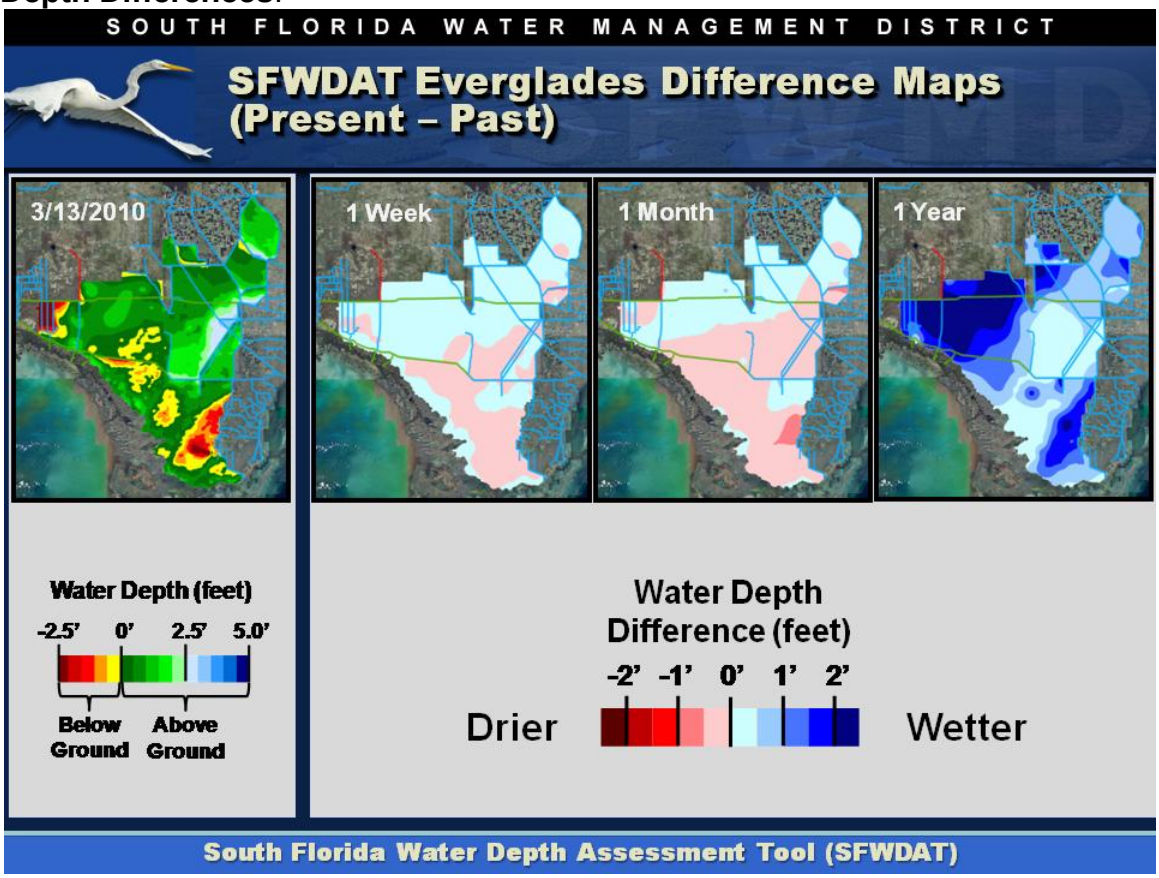
			1 week stage change 12/22/09	1 week stage change 12/29/09	1 week stage change 1/5/10	1 week stage change 1/12/10	1 week stage change 1/19/10	1 week stage change 1/26/10	1 week stage change 2/2/10	1 week stage change 2/9/10	1 week stage change 2/16/10	1 week stage change 2/23/10	1 week stage change 3/2/10	**1 week stage change 3/9/10**	**1 week stage change 3/16/10**	**Recession rate**
	WCA-1	1-7	1.32	-0.06	-0.04	-0.05	0.04	-0.03	-0.01	-0.02	0.02	-0.05	0.07	**-0.06**	**0.15**	Poor
		1-9	2.04	-0.06	-0.04	-0.04	0.00	-0.04	0.00	-0.01	0.01	-0.05	0.10	**-0.08**	**0.07**	Poor
		1-8T	16.77	-0.05	-0.05	-0.04	-0.01	-0.04	0.00	0.00	0.02	-0.09	0.09	**-0.13**	**0.39**	Poor
	WCA-2A	2-17	1.38	-0.23	-0.24	-0.13	-0.06	-0.07	-0.04	-0.04	-0.02	-0.05	0.14	**0.03**	**0.08**	Poor
	WCA-2B	99	3.85	-0.09	-0.12	-0.07	0.00	-0.06	0.03	-0.10	-0.04	-0.09	0.02	**-0.08**	**0.01**	Fair
		EDEN-13	2.40	-0.10	-0.11	-0.04	0.00	-0.02	-0.04	-0.10	-0.03	-0.06	0.00	**-0.08**	**0.00**	Fair
	WCA-3A	62	0.78	-0.06	-0.03	-0.04	0.00	0.00	0.05	-0.02	-0.01	0.02	0.06	**0.00**	**0.16**	Poor
		63	1.11	0.09	0.01	-0.09	-0.05	-0.02	0.05	-0.01	-0.10	-0.10	0.00	**-0.06**	**0.05**	Poor
		64	1.77	-0.02	-0.01	-0.01	0.08	-0.04	-0.01	-0.02	-0.08	-0.06	-0.04	**-0.11**	**-0.02**	Fair
		65	2.61	-0.03	0.00	0.03	0.01	-0.05	0.03	-0.05	-0.08	-0.10	-0.02	**-0.14**	**-0.08**	Good
	WCA-3B	76	1.32	-0.05	-0.03	0.00	0.06	-0.05	0.21	-0.07	-0.05	-0.06	0.01	**-0.05**	**-0.03**	Fair
		71	1.43	-0.05	-0.02	0.01	0.01	0.00	0.01	0.03	-0.03	-0.03	0.01	**-0.06**	**-0.01**	Fair
		SRS1	1.33	-0.07	-0.07	-0.01	0.00	-0.01	0.01	0.00	0.00	-0.01	0.00	**-0.04**	**0.01**	Poor
	ENP	NESRS2	1.15	-0.10	-0.07	-0.03	-0.02	-0.05	0.04	0.07	0.11	0.02	0.03	**-0.03**	**0.04**	Poor

			Depth 12/22/09	Depth 12/29/09	Depth 1/5/10	Depth 1/12/10	Depth 1/19/10	Depth 1/26/10	Depth 2/2/10	Depth 2/9/10	Depth 2/16/10	Depth 2/23/10	Depth 3/2/10	**Depth 3/9/10**	**Depth 3/16/10**	**Foraging water depths**
	WCA-1	1-7	1.32	1.26	1.22	1.17	1.21	1.18	1.17	1.15	1.17	1.12	1.19	**1.13**	**1.28**	Poor
		1-9	2.04	1.98	1.94	1.90	1.90	1.86	1.86	1.85	1.86	1.81	1.91	**1.83**	**1.90**	Poor
		1-8T														
	WCA-2A	2-17	1.38	1.15	0.91	0.78	0.72	0.65	0.61	0.57	0.55	0.50	0.64	**0.67**	**0.75**	Good
	WCA-2B	99	3.85	3.76	3.64	3.57	3.57	3.51	3.54	3.44	3.40	3.31	3.33	**3.25**	**3.26**	Poor
		EDEN-13	2.40	2.30	2.19	2.15	2.15	2.13	2.09	1.99	1.96	1.90	1.90	**1.82**	**1.82**	Poor
	WCA-3A	62	0.78	0.72	0.69	0.65	0.65	0.65	0.70	0.68	0.67	0.69	0.75	**0.75**	**0.91**	Fair
		63	1.11	1.20	1.21	1.12	1.07	1.05	1.10	1.09	0.99	0.89	0.89	**0.83**	**0.88**	Fair
		64	1.77	1.75	1.74	1.73	1.81	1.77	1.76	1.74	1.66	1.60	1.56	**1.45**	**1.43**	Poor
		65	2.61	2.58	2.58	2.61	2.62	2.57	2.60	2.55	2.47	2.37	2.35	**2.21**	**2.13**	Poor
	WCA-3B	76	1.32	1.27	1.24	1.24	1.30	1.25	1.46	1.39	1.34	1.28	1.29	**1.24**	**1.21**	Poor
		71	1.43	1.38	1.36	1.37	1.38	1.38	1.39	1.42	1.39	1.36	1.37	**1.31**	**1.30**	Poor
		SRS1	1.33	1.26	1.19	1.18	1.18	1.17	1.18	1.18	1.18	1.17	1.17	**1.13**	**1.14**	Poor
	ENP	NESRS2	1.15	1.05	0.98	0.95	0.93	0.88	0.92	0.99	1.10	1.12	1.15	**1.12**	**1.16**	Poor

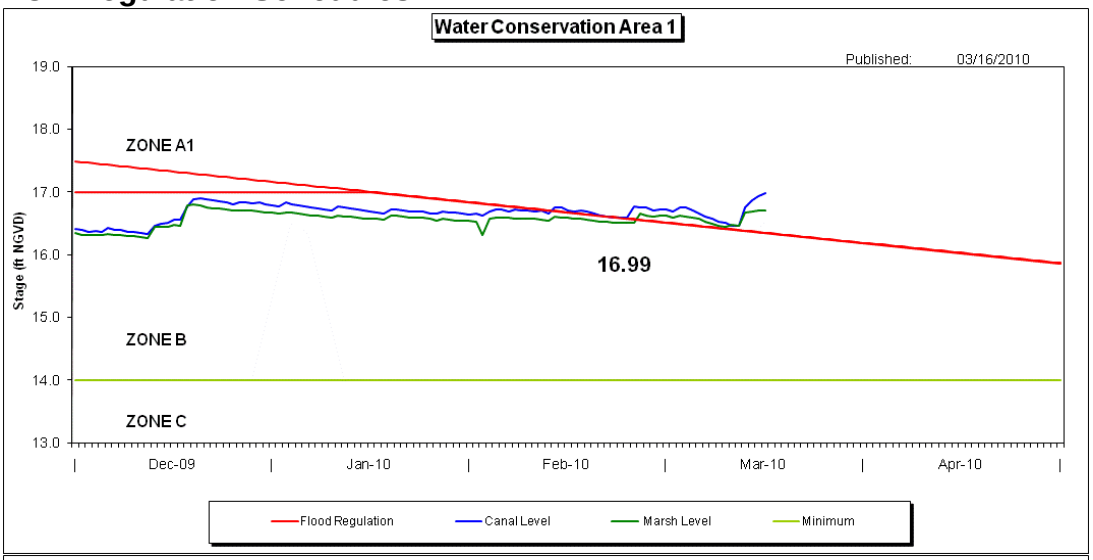
Water Depths:

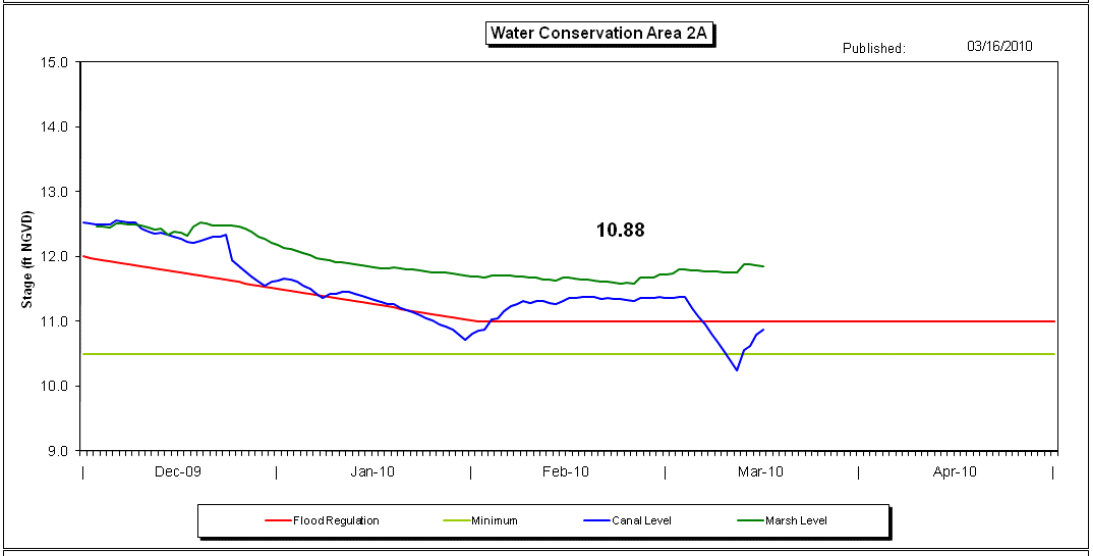


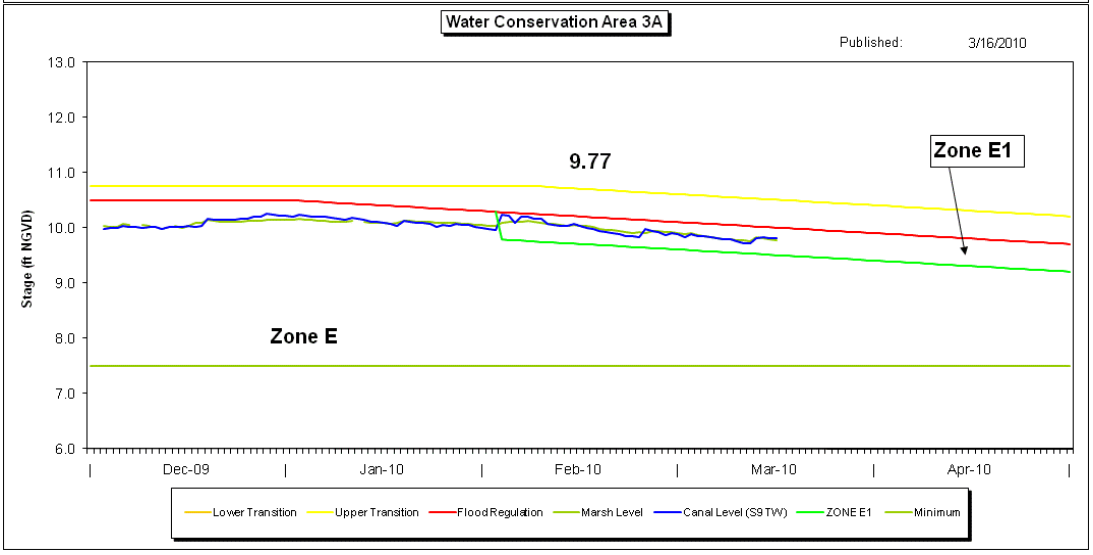
Depth Differences:



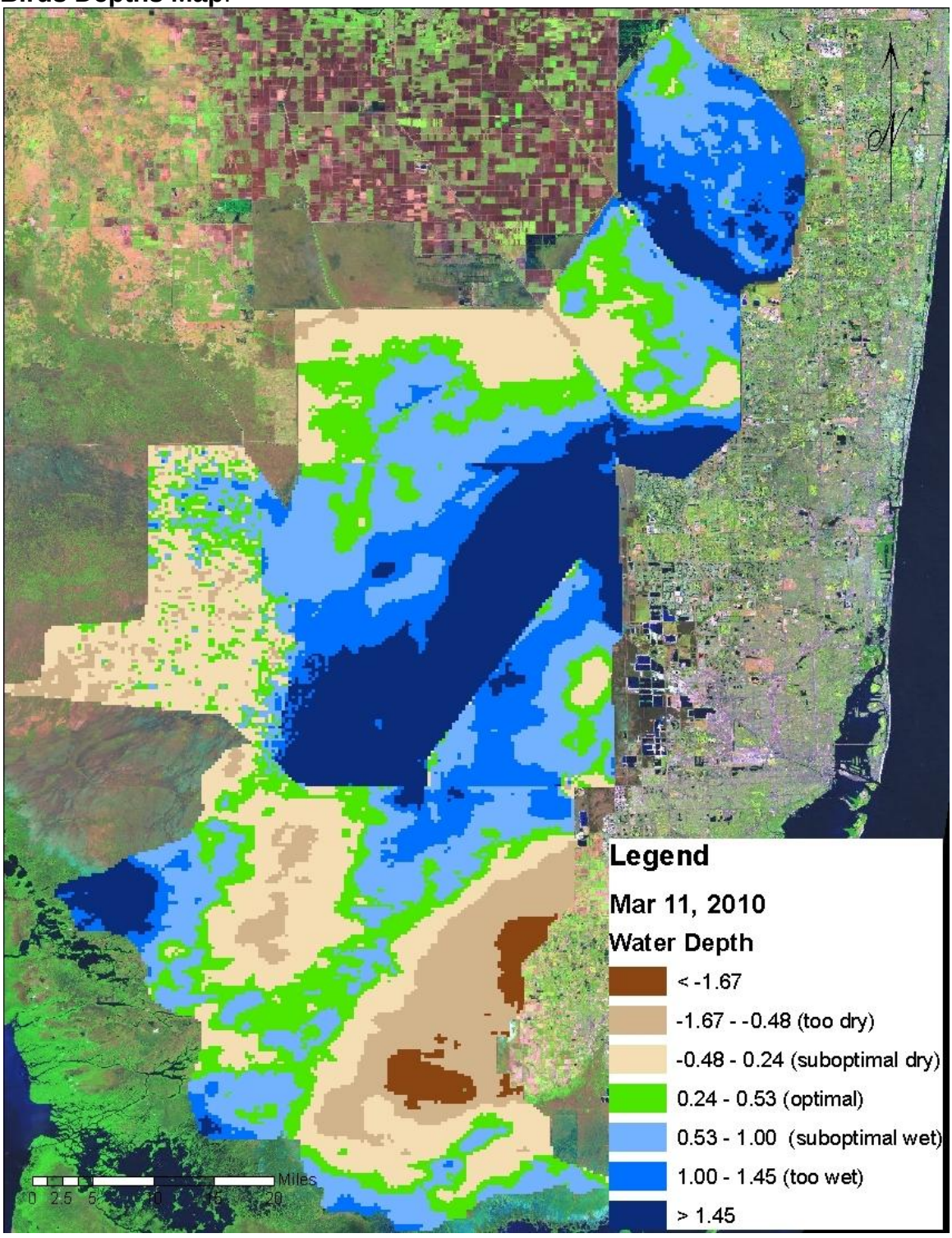
WCA Regulation Schedules:



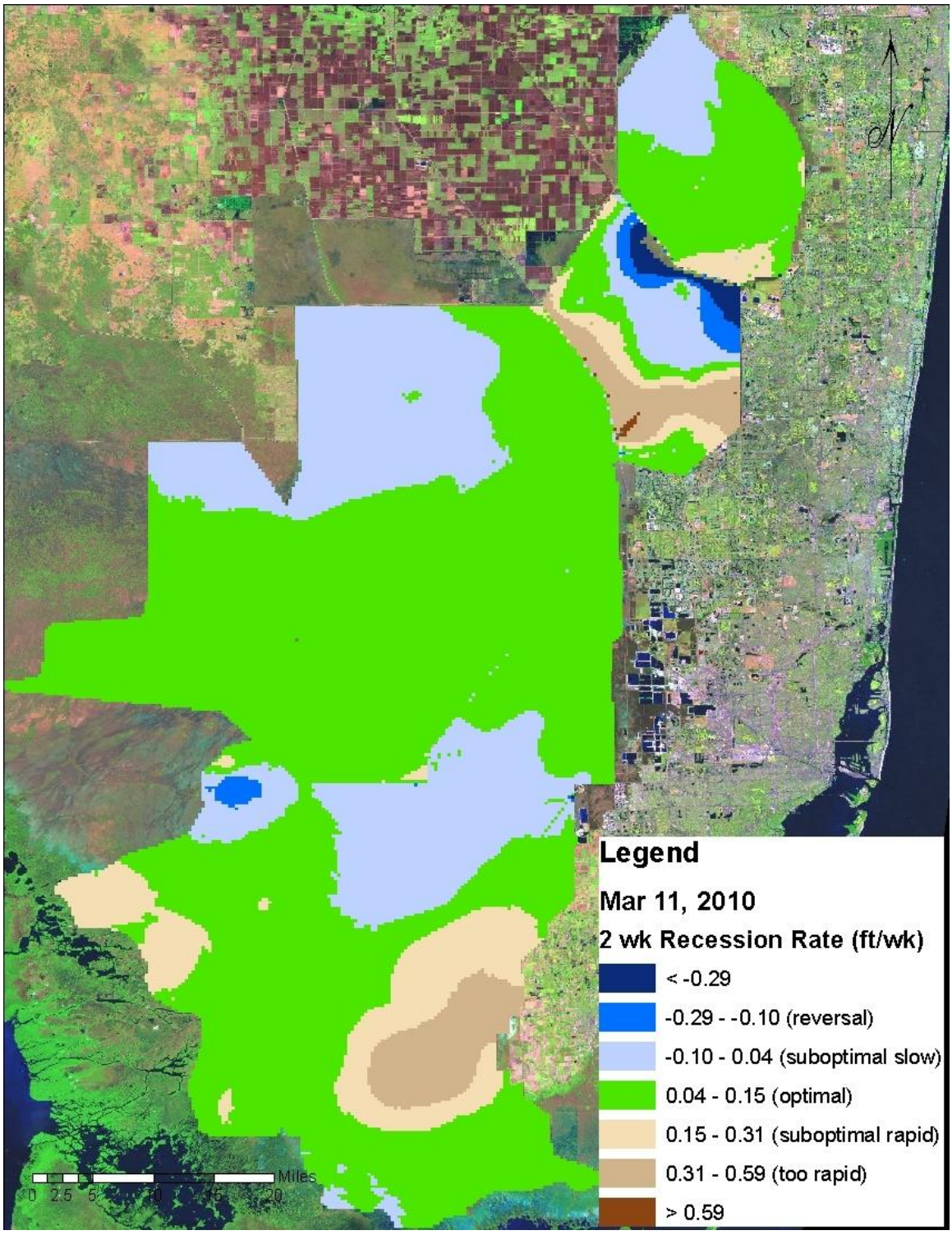




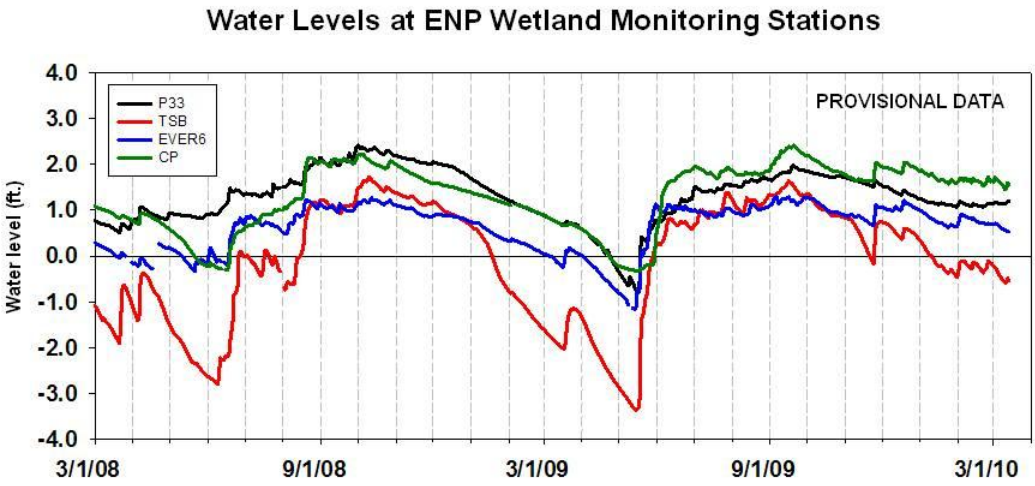
Birds Depths Map:



Birds Recession Rates:



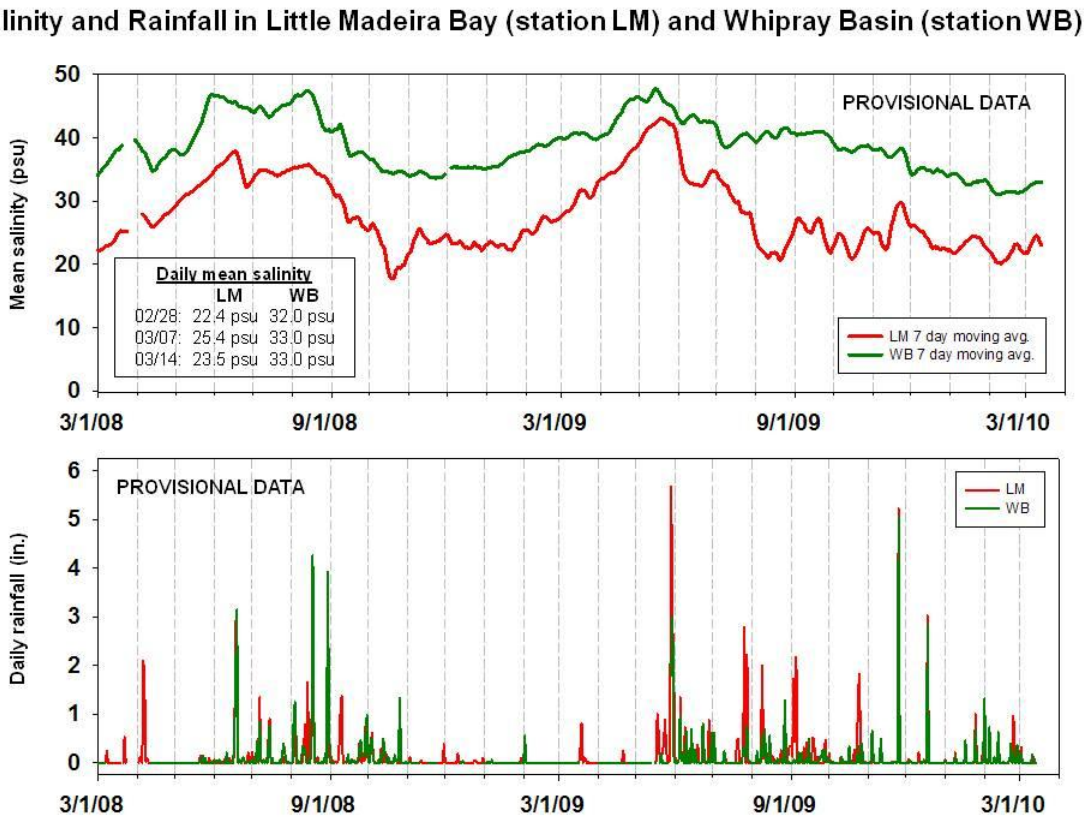
ENP Stages:



DAILY MEAN WATER LEVEL

Date	P33	TSB	EVER6	CP
2/28	1.15	-0.16	0.70	1.65
3/07	1.15	-0.45	0.64	1.60
3/14	1.20	-0.53	0.53	1.55

ENP LM/WB Salinity:



ENP MFL/TR Salinity: